Chapter 9

Matthew Young

Problem 1.

1. \_\_\_\_\_\_7\_\_\_\_\_ Normalize the conceptual model.

\_\_\_\_\_1\_\_\_\_\_\_ Obtain a general description of company operations.

\_\_\_\_\_10\_\_\_\_\_\_ Load the database.

\_\_\_\_\_5\_\_\_\_\_\_ Create a description of each system process.

\_\_\_\_\_11\_\_\_\_\_\_ Test the system.

\_\_\_\_\_\_4\_\_\_\_\_ Draw a data flow diagram and system flowcharts.

\_\_\_\_\_6\_\_\_\_\_\_ Create a conceptual model using ER diagrams.

\_\_\_\_\_\_9\_\_\_\_\_ Create the application programs.

\_\_\_\_\_3\_\_\_\_\_\_ Interview the mechanics.

\_\_\_\_\_\_8\_\_\_\_\_ Create the file (table) structures.

\_\_\_\_\_2\_\_\_\_\_\_ Interview the shop manager.

1. A Payroll module to keep employee payroll information. A Work module that keeps track of a cars maintenance history. A Customer module to keep customer information like balance, billing address, etc. and an Inventory module that keeps quantities for parts.
2. By defining the datatypes used to store data you can streamline the database creation process especially in a relational database. The way a data dictionary does this is by having a pre-determined data type and constraint for each attribute which allows for easy referencing and consistency in the database.
3. A major benefit would be easy access to data on inventory, customers, vehicles, and expenses as well as having the records being accessed be significantly more efficiently stored and accessed.
4. The best approach for making this design would be a centralized approach. You shouldn’t need anymore than a small centralized group to fully flesh out the system. Make sure to leave it as a primarily modular system to allow for growth and change.
5. **Customer activity report**--which basically just shows customer traffic in a designated time period. People with authority for designating work hours for employees would find this helpful for scheduling the proper amount of employees for the predicted traffic.

**Inventory report**--that brings back current part quantities and reservations. Managers and Logistics personnel will find this useful for balancing stock between multiple locations.

**Expense report**--that displays total amount spent on labor, materials, and property for the pay period. Executives will find this beneficial for figuring out their companies growth and overall revenue as well as ways to cut cost.

**Active Work report**--that shows the work on vehicles that is currently in progress. Lower level managers will find this useful to keeping efficiency at its peak by focusing on projects that are currently pending.

Problem 2.

I would ask questions about the Entities that I might need, as well as their relationships. IE, What are the different categories of nuts and bolts? which vendors do you get the materials from? is there already an order system in place to get more?... etc. The answers would help define the entities, attributes, and relationships in the system. I would imagine that the SDLC would look pretty standard with more emphasis on implementation and maintenance. The DBLC would last quite a while until something needed to be added in that was out of original scope and depending upon the company that could either be decades or just a couple of years.

Problem 3.

They would be similar in the respect that you would need to keep track of stock numbers, storage locations, vendors, and orders. They would be different in the respect of how complex of a storage system and stock tracking system would be needed.

Problem 4.

Well firstly I would gather information on basic database requirements and functions by questioning those that will be using it (i.e. administration, student affairs etc.). Next I would use that information to create basic data models and then elaborate on those models until I have enough of an outline to create a rough ERD. Then I would normalize it, create the tables, and model them in the application I plan to use. Then I’d run it, input some test data in and refine it until it gets to an operational state. Then, finally, it would simply boil down to maintaining the database for the rest of its lifecycle.

Problem 5.

A screenshot of a social media post

Description automatically generated

Problem 6.

1. is Corrective, it is an error that must be fixed.

B. is Adaptive, it is a change in how the system needs to operate.

C. is Perfective, it is a small fine-tuning job that just needs to polish off the system

Problem 7.

\_\_\_\_\_9\_\_\_\_\_\_ Create the application programs.

\_\_\_\_\_5\_\_\_\_\_\_ Create a description of each system process.

\_\_\_\_\_11\_\_\_\_\_\_ Test the system.

\_\_\_\_\_10\_\_\_\_\_\_ Load the database.

\_\_\_\_\_7\_\_\_\_\_\_ Normalize the conceptual model.

\_\_\_\_\_3\_\_\_\_\_\_ Interview the soccer club president.

\_\_\_\_\_6\_\_\_\_\_\_ Create a conceptual model using ER diagrams.

\_\_\_\_\_2\_\_\_\_\_\_ Interview the soccer club director of coaching.

\_\_\_\_\_8\_\_\_\_\_\_ Create the file (table) structures.

\_\_\_\_\_1\_\_\_\_\_\_ Obtain a general description of company operations.

\_\_\_\_\_4\_\_\_\_\_\_ Draw a data flow diagram and system flowcharts.